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THE EXTINCT SEA MINK, WITH TAXONOMIC NOTES

By Richard H. Manville[1]

A century ago, along the coasts of New England, there appears to have lived a large, distinctive mustelid variously known as the sea or seashore mink, the giant or big mink, bull mink, salt-water mink, shell-heap mink, or ancient mink. It long since has slipped into oblivion, leaving such a fragmentary record that its true nature is largely a mystery. With the present concern for rare and endangered species similarly threatened with extinction, it seems appropriate to summarize our knowledge of this former member of the American fauna.

For the opportunity to examine the Clark specimen I am indebted to James C. Sullivan of East Winthrop, Maine. Sea mink materials from the Museum of Comparative Zoology were kindly made available by Barbara Lawrence. Arthur Stupka provided much useful, unpublished information. John L. Paradiso assisted with helpful suggestions and by checking my measurements of various specimens. Joseph P. E. Morrison and William C. Schroeder confirmed the identification of certain items reported in the sea mink's diet. To all these individuals, I am most grateful for their willing assistance.

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General Description

Along the Atlantic coast from Maine to New York are thousands of shell heaps or kitchen middens, from a few square yards to an acre or so in extent. These middens were produced by Indian encampments dating back to pre-Columbian times. They have long excited interest (Wyman, 1868) and many are still being explored (Waters and Mack, 1962). In one such shell heap at Brooklin, Hancock Co., Maine—on the western shore of Bluehill Bay—F. W. True and D. W. Prentiss unearthed, in 1897, the fragmentary skull of an unusually large mink. This specimen, no. 115178 in the U. S. National Museum, was described by Prentiss (1903) as a new species, *Lutreola macrodon*.

The type specimen consists of the maxillae, portions of the nasals, the right zygoma, and the palate to beyond the last molar. All teeth are present on the right side, but only the incisors and one premolar on the left. (The right upper canine of the holotype has come loose and has been firmly affixed, inadvertently, on the left side.) All teeth are in good condition except the canine, which is broken at the tip. Prentiss described the rostrum as very wide and the nasal aperture and the infraorbital foramina as large. He pointed out that the nasals ascend more abruptly in the type specimen than in *Mustela vison mink*, its nearest relative; the dentition is similar except for the larger size of the teeth and the more acute angle of the carnassial with the long axis of the skull in *macrodon*. Compared with *M. v. ingens* of Alaska, the largest mink extant, he found *macrodon* to be decidedly larger; e.g., the toothrow (anterior incisor to posterior molar) measured 28.0 vs. 30.0 mm.

Subsequently, many other skeletal remains of *macrodon* have been recovered from old Indian sites along the New England coast. Evidently the sea mink served as food for the Indians. Loomis (1911) reported that "every skull has the brain case broken and lost." Many mandibles were scored, as if by a scraping implement used to remove the flesh. Loomis characterized his mink as large and heavily built, with a low sagittal crest and short, wide postorbital processes. The frontal region was slightly arched between the orbits. Teeth were typical of the genus but stouter and heavier; the inner tubercle of the upper carnassial was single and rather small.

Norton (1930, p. 28) further described a specimen from Goose Island, in the collection of the Portland Society of Natural History, as showing "a well pronounced sagittal crest, a rugose parietal, an ample foramen magnum and massive occipital condyles. The basi-occipital has a strong knob on each margin which extends forward as a distinct ridge. The audital bulla is low, with a spine 1.5 mm. long at the inner anterior point."

Distribution

Different authors have ascribed to the sea mink a probable range along the Atlantic seaboard from southwestern Nova Scotia to the coast of Connecticut. It probably is now impossible to document records from all of this area, but certainly the sea mink once occurred along most of the coasts of Maine and Massachusetts.

Near the type-locality, Moorehead (1922) reported remains of "the large mink" from Boynton's shell heap at Lamoine, near the head of Frenchman's Bay. His specimens were examined by G. M. Allen, who later (1942, pp. 181–183) reported remains of the "sea mink" from sites as distant as "Casco Bay in the south, and northeastward to Mount Desert and Frenchman's Bay, and Roques Island, Washington County, Maine." Loomis (1911), on the basis of fragments from no less than 45 individuals on Flagg Island, near South Harpswell on Casco Bay, described the mink as *Lutreola vison antiquus*. A year later, Loomis and Young (1912) reported remains of 53 individuals from Flagg Island, 3 from Sawyer's Island near Boothbay, 2 from Seward Island in Frenchman's Bay, and 1 from Winter Harbor. Hollister (1913, p. 478) examined the mandible of a specimen from Lower Babson Island, Maine. Summarizing the distributional data then available, Norton (1930, p. 27) listed the range as between "Great Diamond Island, Casco Bay, on the west, and Roque's Island in Washington County on the east," and probably also on the shores of New Brunswick. He noted that a skin, probably of this species, was handled at Campobello Island, near the mouth of the Bay of Fundy, in 1894. Norton also pointed out, with supporting evidence, that specimens from Crouch's Cove on Goose Island in Casco Bay, reported by Wyman (1868) as *Putorius vison*, probably represented the sea mink.

Long ago, Gilpin (1867, p. 12) reported from Nova Scotia large skins which may have come from the sea mink. Some measured as much as 32.5 inches in total length; this may have been due in part to stretching. Skins of *M. v. mink* from the Maine coast seldom exceed 23 inches in length.

More recently, Waters and Ray (1961) unearthed remains of *macrodon* from an archeological site at Assawampsett Pond in Middleboro, Plymouth Co., Mass. The bones were in excellent condition, although fire blackened. Radio-carbon dating indicated their age in the order of 4,300±300 years. This site is now 12 miles from the nearest salt water. The authors speculated that the animals may have reached there via the Taunton or Mattapoisett Rivers, or may have been transported by Indians from Narragansett or Buzzards Bay. The next year, Waters and Mack (1962) reported further re-

mains from Conant's Hill on the Weweantic River. This is a tidal river about 2 miles inland from Buzzards Bay and 15 miles from the earlier site at Middleboro. In Connecticut, Goodwin (1935, p. 70) suggested that the sea mink "might well have been found in the salt marshes and rivers along the coast of the state." In Rhode Island, Cronan and Brooks (1962, p. 104) consider the former occurrence of the sea mink as possible but speculative. Anderson (1947, p. 192) reported that it was "traditionally said to have been commonly trapped along the coast of the Bay of Fundy in southern New Brunswick" and may have "formerly occurred on the southwestern coast of Nova Scotia."

Recent History

The formal description of *macrodon* as a distinct species prompted Manly Hardy (1903) of Brewer, Maine, to write a short account of the sea mink. From about 1835, Hardy's father had been a fur buyer and had handled most of the furs from Penobscot to Frenchman's Bays. Manly Hardy himself continued this trade, and over 50,000 mink skins passed through his hands. He recognized as distinct an unusually large mink, especially from Swan's and Marshall's Islands, whose skins he received from the Indians of the Penobscot and Jericho Bay regions until about 1860. The fur of this mink was much coarser and of a more reddish color than in the inland form. It was usually extremely fat and possessed a very strong, peculiar, fishlike odor. In the early days, because of its large size, it brought a higher price and was persistently sought. Few were trapped; instead they were hunted with dogs. Some men pursued them from island to island, investigating any small ledge where a mink might live.

> They carried their dogs with them, and, besides guns, shovels, pick-axes and crow-bars, took a good supply of pepper and brimstone. If they took refuge in holes or cracks of the ledges, they were usually dislodged by working with shovels and crow-bars, and the dogs caught them when they came out. If they were in crevices of the rocks where they could not be got at and their eyes could be seen to shine, they were shot and pulled out by means of an iron rod with a screw at the end. If they could not be seen, they were usually driven out by firing in charges of pepper. If this failed, then they were smoked with brimstone, in which case they either came out or were suffocated in their holes (Hardy, 1903).

In a short time these practices exterminated the sea mink.

Mansueti (1954) reports that Lawrie Holmes, well-known conservationist of Mount Desert Island, recalled seeing mink traps made of laths, as well as the deadfall variety, in use during the late 1890s along the shore of the outer island near Northeast Harbor.

To Arthur Stupka, Naturalist at Acadia National Park on Mount Desert Island from 1932 to 1935, I am indebted for unpublished notes

and correspondence on the sea mink. They include material from Mrs. Fannie Hardy Eckstorm, the daughter of Manly Hardy, who was custodian of her grandfather's and father's business records from 1835 to 1890. She was well acquainted with the large "seashore" mink and recalled seeing it when she was a child in the 1870s. The Abnaki Indians called it "mousebeysoo," meaning "wet thing." Mink skins commanded their highest price—about $10.00 for the top quality—at the close of the Civil War, and this, Mrs. Eckstorm believed, led to the animal's extermination.

Mrs. Eckstorm wrote further, in 1935, as follows:

> There is the question whether all mink that lived along the shore were the big sea mink. Were there two kinds there? I do not remember it, if there were. . . . I had a very practical acquaintance with birds for many years, while my father was collecting his series, and I often observed the tendency of restricted island forms, or those peculiar to the sea-coast, to run larger and *darker* than the inshore sub-species. . . . Why should these mink *all* be redder and larger, if there were two species on the same territory? The variation was constant. . . . My own opinion is that there were not two *species* of mink on our coast, but an extra-large *sub-species* most highly developed on Swan's and Marshall's Islands. . . . My father laughed at the inferences drawn from a single skull. . . . As to their being styled "species *macrodon*," "big-toothed," of course an animal twice as large as another of the same sort would have a bigger skull and bigger teeth! This is only an individual difference. I see no reason for making a species out of this mink, though it was a stable variety. Father could tell some eight or ten different local forms of mink and he thought several entitled to as good specific standing as the seashore mink.

Other material provided by Stupka relates to an interview in 1934 with Captain Rodney Sadler of Bar Harbor. He recalled seeing the "bull mink" as late as perhaps 1920, swimming from one island to another in the Sorrento region. It made its home on the ocean front, among the rocks of the seawall piled up by the surf. Its den always had two entrances. An adult and four young, which Sadler estimated to be 3 or 4 weeks old (8–10 inches long), were seen along the beach of Sister's Island in August. This was "40 odd years ago." The young were very attractive, lighter in color than the dark brown adult. The bull mink were said to feed almost entirely on fish; the most common remains about their dens were of toad sculpin (probably *Myoxocephalus octodecemspinosus*) and horned pout (probably *Macrozoarces americanus*). Mansueti (1954) stated they had been reported in association with the banded snail, *Cepaea* (*Helix*) *hortensis*, on the outer islands. Probably mussels and other shellfish also contributed to their diet.

Allen (1942, p. 181) subscribes to the view that, in earlier times, only the large sea mink occurred in the eastern part of the Gulf of Maine, probably ranging as far as southern Nova Scotia. Evidently

it was supplanted, within the last century, by the smaller southern race, *M. v. mink*, which also has a propensity for seacoasts.

The various early accounts of the sea mink prompted Seton (1921) to call attention to the possibility of still obtaining a specimen. "It was the custom in the small hotels of the region," he wrote, "to have mounted any local animal of unusual interest in point of size, etc. These rarities were kept in glass cases as parlor ornaments or as barroom accessories." As a result of Seton's plea, an unusually large mounted mink specimen was located at Lubec, in extreme eastern Maine near the Bay of Fundy, in the possession of Clarence H. Clark.

A Supposed Sea Mink Specimen

Clarence H. Clark—businessman, politician, historian, and county commissioner of Washington County—had over the years built up a considerable private collection of the fauna and flora of eastern Maine, housed in the upper part of his residence at Lubec. Included was a very large, light brown (and much faded) mounted specimen alleged to be the sea mink. Norton (1930, p. 27) first brought it to the attention of the scientific public. He saw the specimen in 1924 and was told by Clark that it was taken at Campobello Island, New Brunswick, in 1894.[2] This mink, mounted on a wooden base, was prepared in the old-fashioned way, with the skull and leg bones in place. The mouth is slightly open, permitting examination of the forward teeth. This and other items in the Clark collection were described in glowing terms by Keene (1929), who published a picture of the mink and was at pains to point out that it was "beyond price" and was sought by many of the nation's museums; however, Clark did not wish to part with it.

In 1935, Goodwin published a photograph (his plate IV, b) of the specimen, from Clarence Clark, depicting it as the sea-mink. Stupka, in the early 1930s, examined and photographed the same mount, and his picture was subsequently published by Leopold (1936). Mairs and Parks (1964) offered still another photograph, by the Portland Society of Natural History.[3] Mansueti (1954) presented his own drawing of the sea mink, posed beside the smaller northeastern mink of today.

By 1964, the Clark collection had come into the possession of James C. Sullivan, then of Dennysville, Maine. He was anxious to

[2] Goodwin (1935, p. 70), in discussing the same specimen, says that Clark reported it taken "by a neighbor of his near the Bay of Fundy about 1874." This may have referred to the Jonesport specimen of "about 1880" mentioned by Norton (1930, p. 31).

[3] It should be pointed out that the measurements given by Mairs and Parks are *not* those of the Clark specimen under discussion but rather are the "probable dimensions" of *M. macrodon* as computed by Seton (1929, vol. 2, p. 562).

Mounted specimen of the "sea mink" from the Clark collection (Smithsonian Institution photograph, 1966).

dispose of the whole lot and felt that he could sell the mink specimen for a sizeable sum. When we were approached at the National Museum on this matter, we agreed to examine the specimen to verify its identification before negotiating further regarding its acquisition. The lengendary specimen, which for safekeeping had been in storage at Waltham, Mass., reached us early in May 1965. Unfortunately, no data whatsoever accompanied it. It was examined with much interest and closely scrutinized by our staff and later by other, visiting scientists. In all, no less than 20 mammalogists expressed their opinions on it. The mink was subsequently returned to Mr. Sullivan, now residing at East Winthrop, Maine.

The Clark specimen (pl. 1) is indeed a large mink and in all probability was an adult male. The fur is coarse in texture and light reddish tan in color. The tail and hind feet are darkest, and the rest (particularly the right side and head) are much faded. Between the forelegs is a whitish patch about 50 x 15 mm in area; smaller white spots are present on the left forearm and medially in the inguinal region. Measurements of the mounted specimen are approximately as follows: total length 720, tail 210, hind foot 70 mm. In table 1,

TABLE 1.—*Skin measurements (mm) of various minks*

	Total length	Tail length	Hind foot
M. v. vison	580	150	68
1 ad. ♂, Quebec			
M. v. ingens	663	192	80
2 ad. ♂ ♂, Alaska	(630–695)	(174–210)	(75–85)
M. v. mink	644	231	74
3 ad. ♂ ♂, Maryland	(640–650)	(225–238)	(70–81)
Clark specimen	720	210	70
M. macrodon	914	254	88
Seton (1929) estimates			

these measurements are compared with those of *M. macrodon*, as computed by Seton (1929, vol. 2, p. 562), as well as with examples, from the national collection, of specimens of *M. v. vison* and *M. v. mink*, from immediately north and south of the range in New England, and of *M. v. ingens*, the largest subspecies of mink extant, from Alaska. The Clark specimen, although larger in total length (possibly due to stretching), falls clearly within the limits of *Mustela vison* and well below those of *Mustela macrodon*.

Mustela macrodon was described from skull fragments only, and its distinguishing traits relate to the large teeth, particularly the upper canines. In table 2, tooth measurements of the Clark specimen are similarly compared with those of other minks in the national collection. These relationships are further illustrated in figure 1. Again, this controversial specimen falls clearly within the limits of *Mustela vison*.

TABLE 2.—*Tooth measurements (mm) of various minks*

	Greatest width across upper incisors	Greatest width across upper canines	Antero-posterior diameter of upper canine at alveolus
M. v. vison	5.6	12.1	3.2
3 ad. ♂♂, Quebec	(5.3–6.0)	(11.5–12.4)	(3.2)
M. v. ingens	7.2	15.7	4.3
3 ad. ♂♂, Alaska	(7.0–7.4)	(14.5–16.6)	(4.0–4.5)
M. v. mink	6.3	14.1	3.8
3 ad. ♂♂, Maryland	(6.1–6.5)	(13.6–14.7)	(3.7–3.9)
Clark specimen	6.0	13.9	3.6
M. macrodon	7.9	18.5	5.0
3 specimens, incl. holotype, Maine	(7.8–8.0)	(18.2–19.2)	(5.0)

One is forced to conclude that the Clark specimen, rather than representing the sea mink, *M. macrodon*, is actually an unusually large (probably adult male) specimen of the present mink, *M. vison*. The indications are that its affinity is closest to *M. v. mink*. There is even the possibility that the large Clark specimen was an intergrade between the sea mink and *M. vison*.

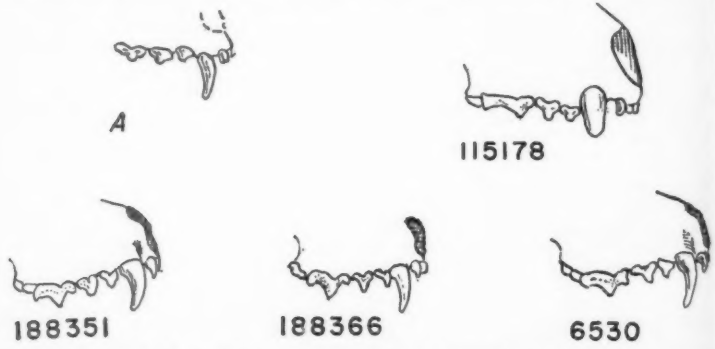

FIGURE 1.—Lateral views of the right upper teeth in various minks: *A*, the Clark specimen; 115178, holotype of *M. macrodon;* 188351, *M. v. mink*, Connecticut; 188366, *M. v. vison*, Quebec; 6530, holotype of *M. v. ingens*, Alaska.

Taxonomic Status

The status of the extinct sea mink, *Mustela macrodon*, itself seems in need of reappraisal. Known only from fragmentary skeletal remains, its supposed external measurements are largely a matter of conjecture. Certainly it must have been a large mink, but figures on its "probable dimensions" (Seton, 1929, vol. 2, p. 562) would appear to have been exaggerated. I feel it more reasonable to consider it as perhaps 25 per cent larger than *M. v. mink* of today and 15 per cent larger than the present *M. v. ingens*. In this I concur with Loomis (1911), who considered *antiquus* (=*macrodon*) as "all of 25 per cent larger" than *lutreocephalus* (=*mink*), with due allowance for adult females being normally about 20 per cent smaller than adult males in each species.

FIGURE 2.—Palatal views of teeth in three minks, drawn to approximately the same scale: 115178, holotype of *M. macrodon;* 6530, holotype of *M. v. ingens*, Alaska; 188351, *M. v. mink*, Connecticut.

In figure 2 are sketches of the upper dentition of *M. macrodon* and of two subspecies of present minks. The *macrodon* specimen is fragmentary and considerably worn; yet, aside from its size and generally massive character, I perceive in it no highly significant differences when compared with the other two specimens. The traits mentioned by Prentiss (1903), Hollister (1913), and Norton (1930)—wide rostrum, large infraorbital foramen, low audital bullae, rugose parietal, basioccipital with strong knob—appear to me to be relatively minor in nature, and not of the magnitude generally considered as distinguishing species. This was the opinion of Loomis (1911), whose materials, in all probability, represented *macrodon*. Loomis and Norton were not altogether in agreement as to the nature of the sagittal crest, which probably varied with the age of their specimens.

As attested by Hardy (1903), a number of recognizably different forms of mink occurred along the New England coast a century ago.

Many of the differences were probably attributable to individual or sexual variation. One of these forms, more distinct than others because of its large size, was pursued avidly for its pelt. Its seashore habitat rendered it relatively easy to capture. Overly zealous hunting, and possibly other factors of which we are unaware, led to its diminution and, ultimately, to its complete replacement by other, smaller forms of mink.

All the evidence indicates to me that the sea mink is most realistically considered as a subspecies, now extinct, of the prevalent mink, *Mustela vison*, of today. This view is strengthened if, as seems possible, the Clark specimen was indeed an intergrade between two other forms of mink. Accordingly, the sea mink should properly be known as follows.

***Mustela vison macrodon* (Prentiss)**

Putorius vison Wyman, 1868, Amer. Nat., vol. 1, p. 574, January.
Lutreola macrodon Prentiss, 1903, Proc. U.S. Nat. Mus., vol. 26, p. 887, July 6.
Putorius macrodon Trouessart, 1904, Catalogus mammalium, Suppl., vol. 1, p. 206.
Lutreola vison antiquus Loomis, 1911, Amer. Journ. Sci., vol. 31, p. 228, March.
Mustela macrodon Miller, 1912, U.S. Nat. Mus. Bull. 79, p. 101, Dec. 31.

Type-locality: Shell heaps at Brooklin, Bluehill Bay, Hancock Co., Maine.

Range: Known only from skeletal remains; coast of New England from Penobscot and Casco Bays south to Middleboro, Plymouth Co., Mass.; possibly north to Campobello Island, New Brunswick, and south to the salt marshes and rivers of coastal Connecticut. Presumably extinct since about 1860 or somewhat later.

Specimens examined: 57 fragmentary crania and mandibles of *Mustela macrodon*, all from MAINE. HANCOCK COUNTY: Babson's Landing, 1 (USNM); Black Island, 4 (USNM); Brooklin, 2 (including the holotype, USNM); Campbell's Island, 5 (USNM); Conary's Cove, 8 (USNM); Eggemoggin Reach, 1 (USNM); Freethy's Bluff, 2 (USNM); Frenchman's Bay, 1 (MCZ); Harbor Island, 5 (MCZ); Kane's Point, 1 (USNM); Lower Babson Island, 3 (USNM); Naskeag Point, 6 (USNM); Penobscot, 2 (MCZ); Stonington, Deer Isle, 6 (USNM); Tibbitt's Cove, 1 (USNM). KNOX COUNTY: Great Spruce Head Island, 1 (MCZ); Port Clyde, 8 (MCZ). Also, numerous specimens of *Mustela vison*.

Summary

Reviewed is what we know of the natural history of the sea mink, *Mustela macrodon*, which inhabited the New England coasts until about 1880. Its probable earlier distribution is sketched, and reasons for its extinction are discussed. The only alleged skin extant, a

mounted specimen, is shown to be that of a large *Mustela vison*, possibly *M. v. mink*, or even an intergrade between *M. v. mink* and *M. macrodon*. The sea mink itself is reduced to subspecific rank, as *Mustela vison macrodon* (Prentiss).

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